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First report of Squash Vine Borer, *Melittia cucurbitae* (Harris, 1828) (Lepidoptera, Sessidae) in Brazil and South America: distribution extension and geographic distribution map

Diones Krinski

Federal University of Paraná (UFPR), Department of Plant Science and Phytosanitarism, Division of Agricultural Sciences, Caixa Postal 19061, 81531-990, Curitiba, PR, Brazil
E-mail: dioneskrinski@gmail.com

Abstract: *Melittia cucurbitae* (Harris, 1828) is a very important pest of squash and pumpkins. To date, this lepidopteran had its distribution reported for eastern United States, southeastern Canada, and Mexico. Our study reports for the first time the occurrence of squash vine borer, *M. cucurbitae* for South America, being the first record to Brazil, in southwest region of Pará state.

Key words: Novo Progresso, Pará state, insect pests, phytosanitary defense system.

The Squash Vine Borer, *Melittia cucurbitae* (Harris, 1828) (Lepidoptera, Sesiidae), is distributed throughout the eastern United States, southeastern Canada, and Mexico to near Guatemala (Becker and Eichlin 1984; Klun et al. 1990; Jackson et al. 2005). This species is an important native pest of cucurbits (Cucurbitaceae), especially summer squash (*Cucurbita pepo* L.) and some winter squash, pumpkins, and gourds (*C. pepo* and *C. maxima* Duchesne) that have large, hollow stems (Howe and Rhodes 1973). Squash Vine Borers are found less frequently in the narrow stems of cucumber (*Cucumis sativus* L.), cantaloupe (*Cucumis melo* L.), and watermelons, *Citrullus lanatus* (Thunb.) Matsum & Nakai (Britton 1919).

Due to economic and food value, in Brazil the cultivation of cucurbits, especially pumpkins, has great social importance for the generation of direct and indirect jobs, since it requires large amount of hand labor from cultivation to market (Resende et al. 2013). Thus, knowledge of new potential insect pests that may cause damage to production in cucurbit crops is important.

During expeditions conducted between September 2011 and February 2012 to Dona Nena farm, in Novo Progresso, Pará state, Brazil (07°07′58″ S, 055°23′30″ W, WGS84 datum; 232 m above sea level), one adult specimen of *M. cucurbitae* was photographed near pumpkin plants (Figure 1). The species was identified by comparison of photographic records with the literature (Opler et al. 2014). This new record increases the species' distribution to South America and is the first report from Brazil, in the southwest region of Pará state (Figure 2).

The borers enter and feed in the stems of vines and greenish-yellow excrement is pushed out of the hole in the stem. This feeding causes severe damage to the plant and in many cases, kills it by girdling the stem (Capinera 2008). The Squash Vine Borer can cause as much as 25% crop loss in commercial squash growing. Home plantings usually suffer greater losses (Canhilal and Carner 2006).

Despite its importance, little recent research has been conducted on the biology of this pest. Most recent publications restate information from original studies done in the late 19th or early 20th century. In Central and

Figure 1. Adult of *Melittia cucurbitae* from Dona Nena farm, Novo Progresso, Pará state, Brazil, February 2012. Photo by D. Krinski.

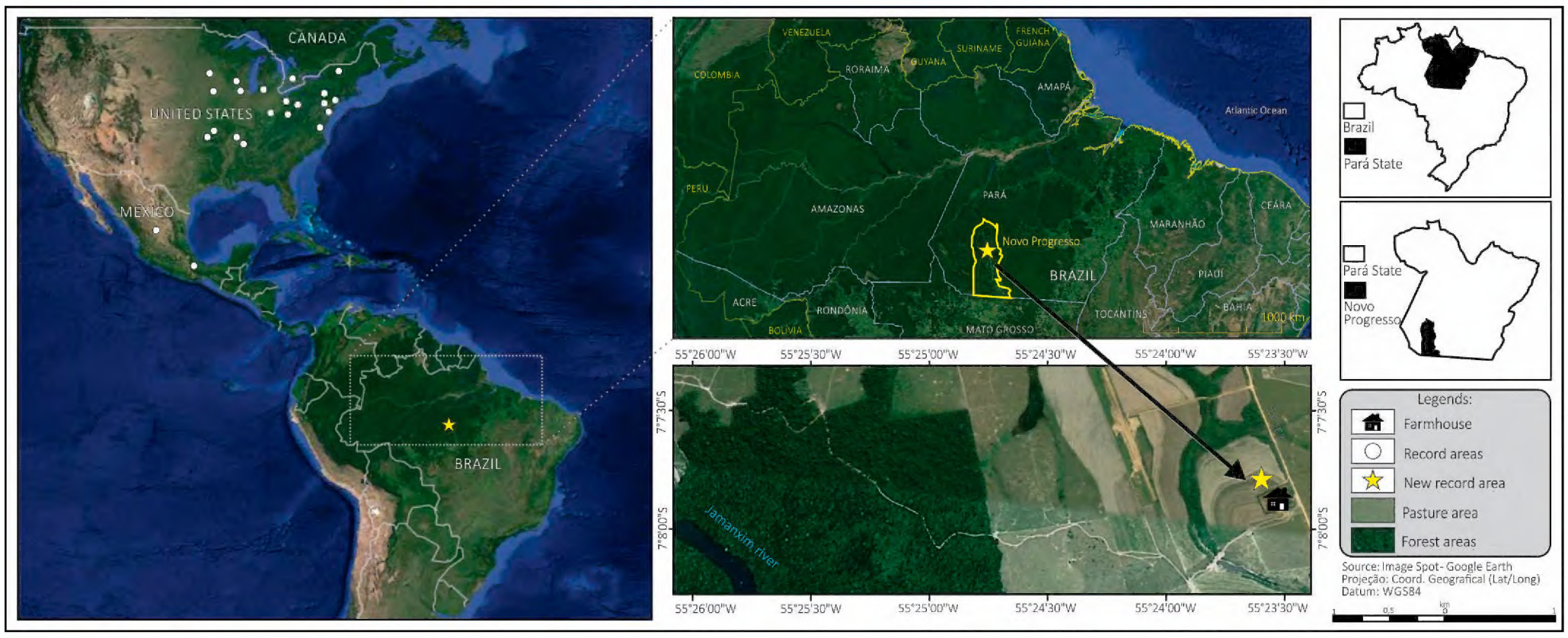

Figure 2. Distribution map of *Melittia cucurbitae*. White circle: record areas in Canada, United States and México; Star: new record of occurrence (Dona Nena farm, Novo Progresso, Pará state, Brazil). Source: Google Earth™.

North America, Squash Vine Borers are especially devastating in home gardens where they are concentrated on fewer plants and losses may often be 50% to 100% (Pearson 1995). In larger commercial plantings, their impact is less noticeable because the vine borer population is diluted over a larger area. Nevertheless, Squash Vine Borers can be a serious economic problem in commercial cucurbit production (McLeod and Gualtieri 1992), and they have been known to destroy over 25% of commercial crops (Bauernfeind and Nechols 2001).

Considering the damage caused by the Squash Vine Borers primarily in the United States, this record in Brazil serves as a warning to Brazilian producers that produce pumpkin, cucumber, melon and watermelon; producers should be alert to the appearance of this pest lepidopteran on their properties.

As this is the first (photographic) record of *M. cucurbitae* in Brazil and South America, it is extremely important to conduct new inventories in cucurbit-producing regions. In addition, the phytosanitary defense system of Brazilian government should to be alert to this species and include *M. cucurbitae* species as quarantine pest in category A2 in accordance with International Standards for Phytosanitary Measures (ISPM 11-2013). In this category are pest species with potential economic importance, already present in the country, but with local distribution.

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